Name _____ Period _____

Study Guide: Temperature

To help you answer the following questions, use your "Heat vs Temperature," "Measuring Temperature," "Temperature and Density," "Changing Matter," "Just a Phase" , and "Getting Rid of Misconceptions" notes.

1. The total energy of molecular motion in a substance that is measured in joules is called _____, and the measure of the average energy of molecular motion in a substance that is measured in degrees is called _____.

2. What does a thermometer measure?

3. A pot of boiling water has more _____ than a drop of boiling water.

4. The heat required to raise the unit mass of a substance by one degree of temperature is called _____.

5. Water has a _____ specific heat capacity, while metals have a _____ specific heat capacity.

6. _____ created a thermoscope, and _____ made the first thermometer.

7. Water boils at _____ ºF and _____ºC. Water freezes AND ice melts at _____ ºF and _____ºC. (NOTE: If the pressure is at 1atm)

8. What is absolute zero? (define and give the temperature in ºC)

9. When most matter increases in temperature, volume _____, mass _____, and density _____.

10. The increase in the volume of matter with increasing temperature is known as _____, and the decrease in volume with decreasing temperature is known as _____.

11. _____ expands and becomes less dense when it approaches freezing.

12. Changes that DO result in the production of another substance and are NOT readily reversible are called _____ changes. Changes that do NOT result in the production of a new substance and are typically reversible through physical means are called _____ changes.

13. Give 3 examples of physical changes.

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14. Give 3 examples of chemical changes.

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15. The starting substance in a chemical reaction is the _____. A substance formed by a chemical reaction is a _____.

16. To melt ice you must add _____. To freeze water you must take away _____.

17. _____ is changing from a solid to a liquid, and _____ is changing from a liquid to a solid.

18. _____ is changing from a gas to a liquid, and _____ is changing from a liquid to a gas at the surface of a liquid at various temperatures.

19. Changing from a liquid to a gas at a specific temperature for that substance is called _____.

20. The _____ point is the same temperature as the freezing point.

21. The temperature at which a liquid changes into a gas is the _____.

22. Give 4 examples of characteristic properties that can be used to help identify a substance.

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23. When matter changes state (in a closed container), does the mass increase, decrease, or stay the same?

24. When a chemical reaction occurs, does matter get destroyed? _____ Do the reactants disappear? _____

25. Are substances that boil and melt always hot? _____ Does increasing the heat input change a substance's melting or boiling points? _____

Use your labs and practice worksheets to help you answer the following questions:

26. Use the following equations to complete these conversions:

ºC = (ºF - 32) X (5/9) ºF= (ºC) X (9/5) + 32 K = ºC + 273

50ºC = _____ ºF 32ºF = _____ K

(You MUST show your work below to get credit)

27. In the demonstration where I let a container of ice melt, why did I put a lid on the container when comparing the mass before and after?

A student measured the mass of a graduated cylinder. She put some water into the graduated cylinder and, after carefully measuring the mass again, placed it in a warm place for 5 days (without a lid!). After 5 days, she again measured the mass of the graduated cylinder and water. Use the table below to answer the following questions:

Mass of the Graduated Cylinder	40.4g
Mass of the Graduated Cylinder + Water	52.6g
Mass of the Graduated Cylinder + Water After 5 Days	48.9g

28. What was the mass of water placed in the graduated cylinder? (show your work!)

29. What was the change in mass of the water over the 5 day period? (show your work!)

30. Using the graph below, determine the MELTING POINT , the BOILING POINT, and the FREEZING POINT.

Melting point = _____°C Boiling point = _____°C Freezing point = _____°C

This graph shows the temperature of an unknown substance as it was heated over time.